

Update on Tevatron Lattice

Alexander Valishev for the Tevatron Team

Joint Luminosity Meeting 8/16/2006

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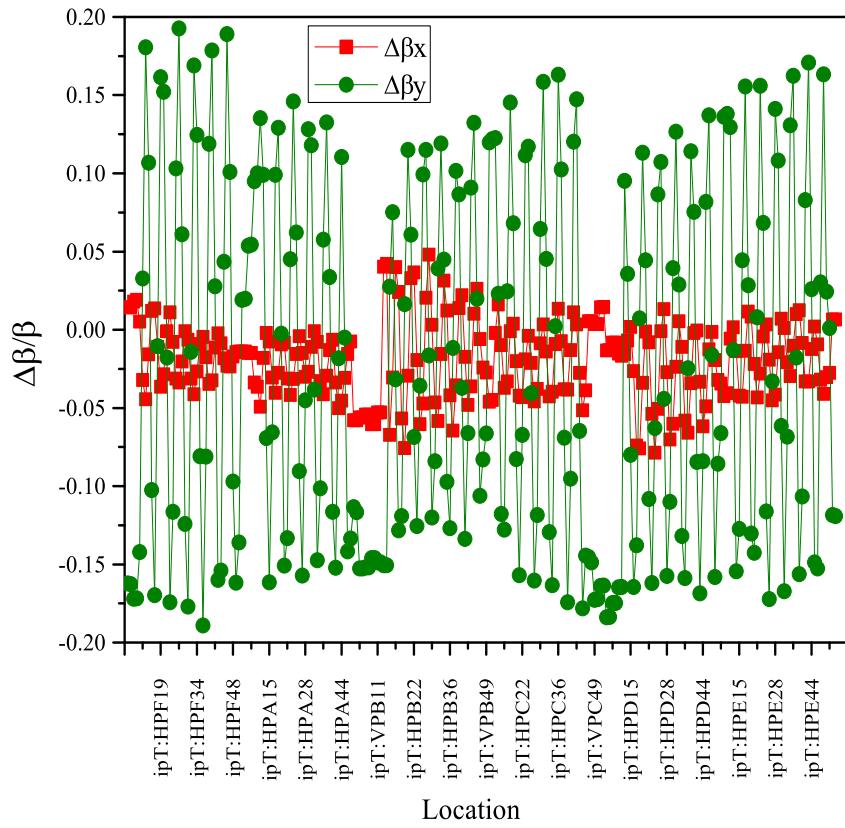
- Summary of shutdown works
- Optics after shutdown, beta*'s
- Luminosity and beam life time

Optics Related Work During Shutdown

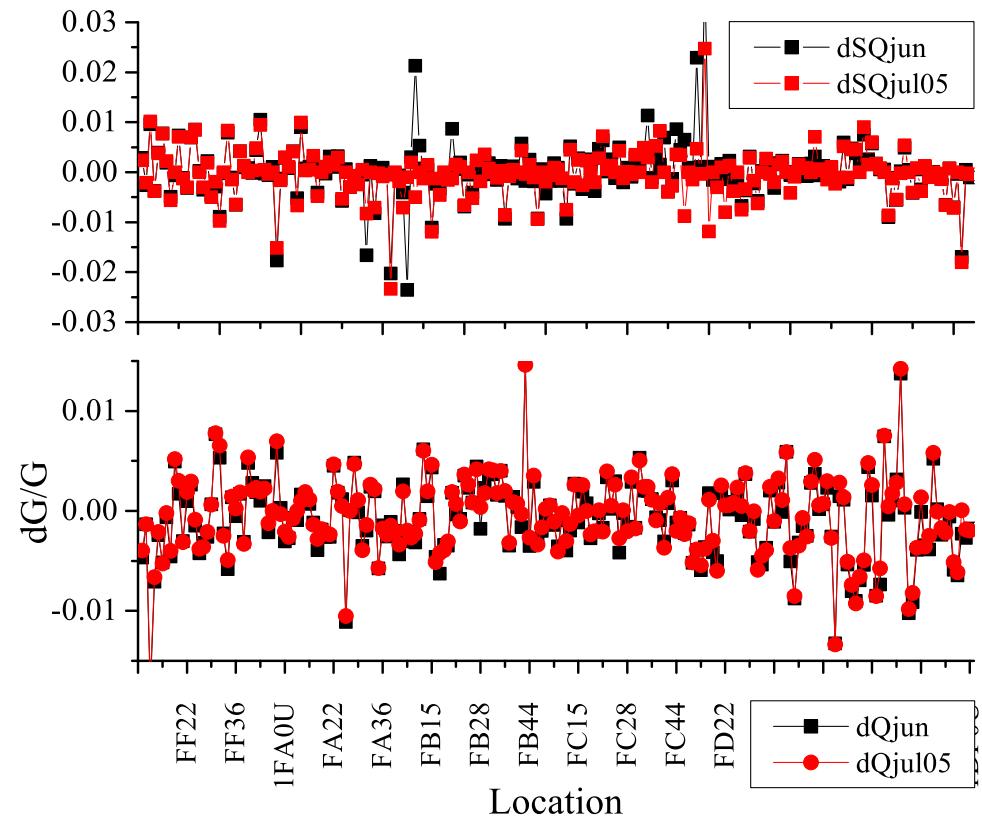
- Re-shimmed remaining dipoles
- Unrolled A38, A39 and D16 (!) quadrupoles
- Installed 2 new electrostatic separators
 - new helix

LowBeta Optics Measurement at Startup (6/6/06)

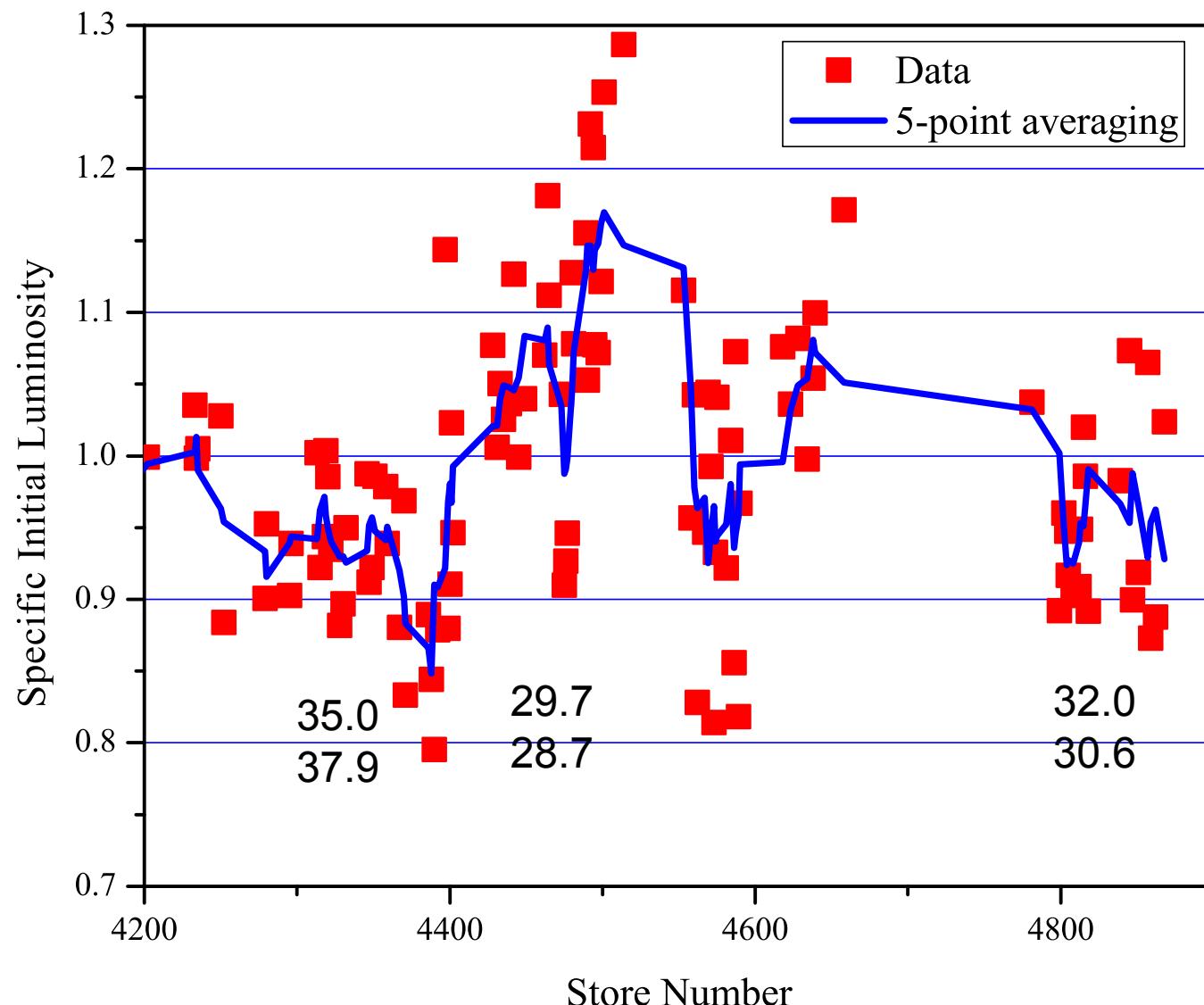
ORM fit converged to 30 mm
That corresponds to
Beta-function error of ~15%



	β_x^* (cm)	β_y^* (cm)	
CDF	30.6	33.4	$\pm 15\%$
D0	27.8	33.3	$\pm 15\%$



Specific Luminosity

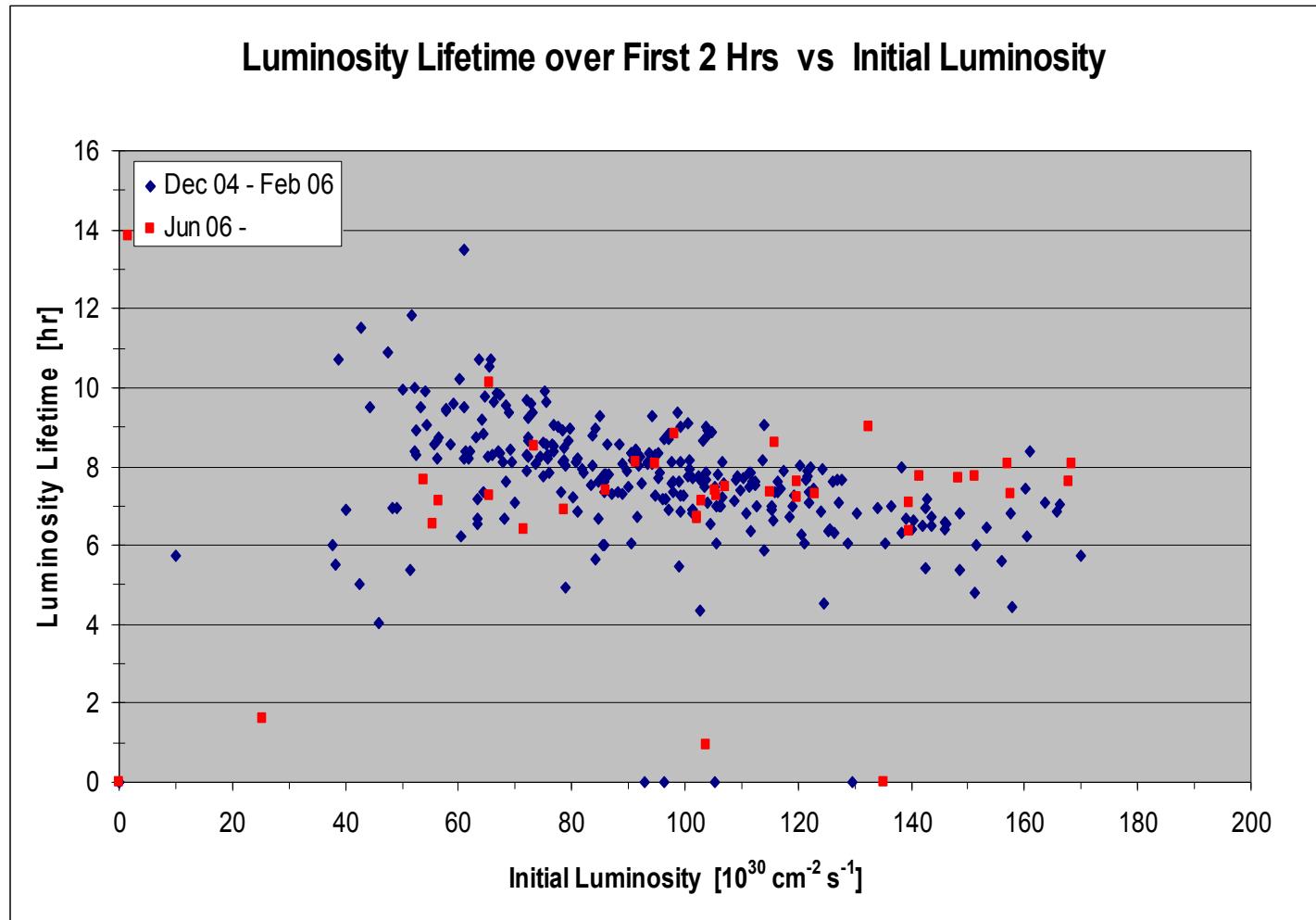


New Helix - Increased Separation in 1st LR Collision Points (Y.Alexahin)

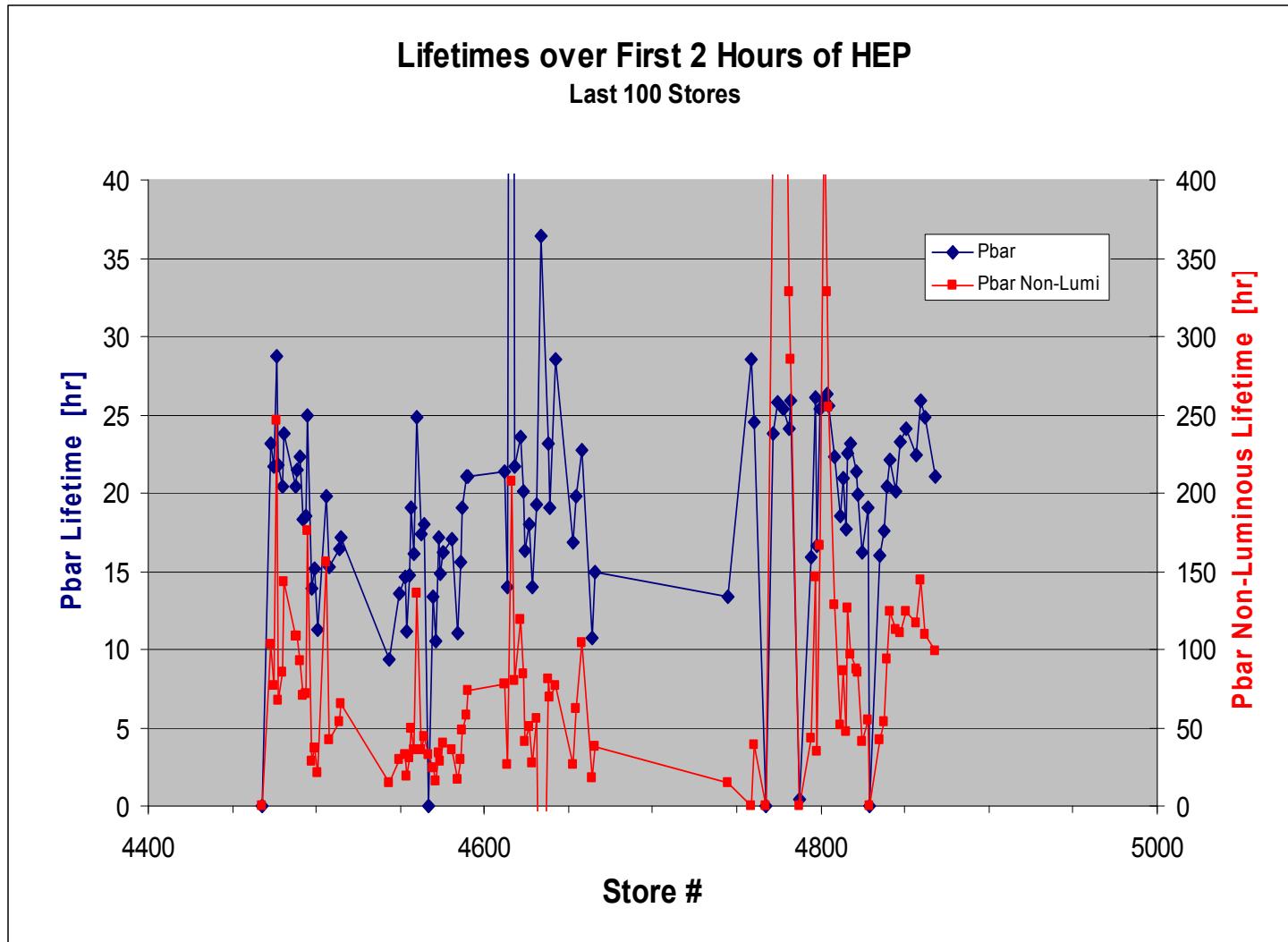
	B0 US	B0 DS	D0 US	D0 DS
Before	5.4	5.6	5.0	5.2
After	6.4	5.8	6.2	5.6

Separation in beam sigma

Effect of the New Helix on Luminosity and Beam Lifetime #1

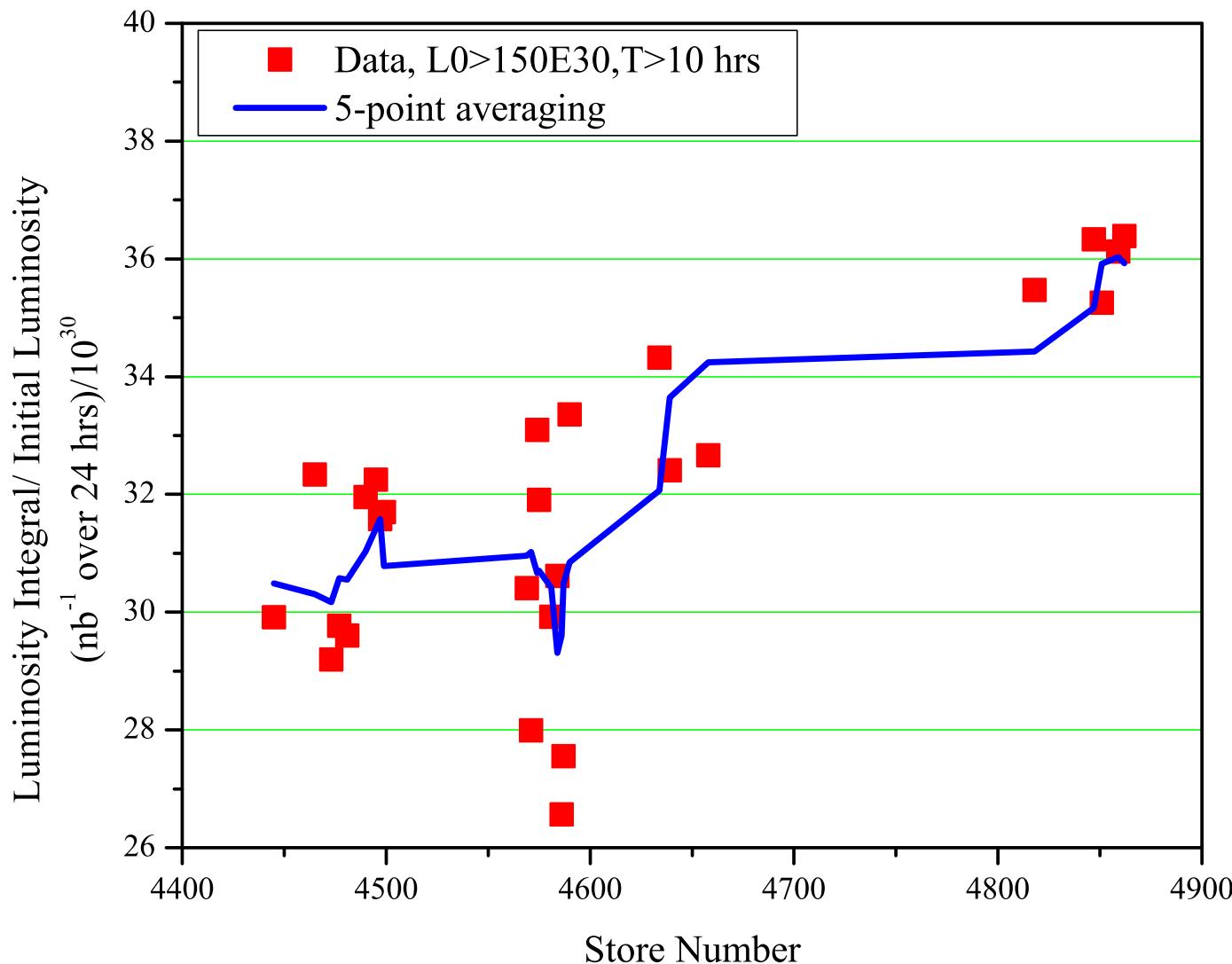


Effect of the New Helix on Luminosity and Beam Lifetime #2



Effect of the New Helix on Luminosity and Beam Lifetime

#3



Summary

- Beta* values after shutdown are 6-7% higher than before. Hence, specific luminosity is ~5% lower
- New helix increased separation in upstream LR collision points by ~20%, which resulted in similar improvement of luminosity life time
- Effect on integrated luminosity is +16%!
- There is potentially room for improvement - specific luminosity

Backup

